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EXAMINER

ATKINSON, C

ART UNIT

PAPER NUMBER

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DATE MAILED:

02/27/96

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

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 This application has been examined  Responsive to communication filed on 11/28/95  This action is made final.A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133**Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:**

1.  Notice of References Cited by Examiner, PTO-892.
2.  Notice of Draftsman's Patent Drawing Review, PTO-948.
3.  Notice of Art Cited by Applicant, PTO-1449.
4.  Notice of Informal Patent Application, PTO-152.
5.  Information on How to Effect Drawing Changes, PTO-1474.
6.  \_\_\_\_\_

**Part II SUMMARY OF ACTION**

1.  Claims 23-42 are pending in the application.  
Of the above, claims 29-30, 34-36 and 39 are withdrawn from consideration.
2.  Claims 1-22 have been cancelled.
3.  Claims \_\_\_\_\_ are allowed.
4.  Claims 23-28, 31-33, 37-38 and 40-42 are rejected.
5.  Claims \_\_\_\_\_ are objected to.
6.  Claims \_\_\_\_\_ are subject to restriction or election requirement.
7.  This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8.  Formal drawings are required in response to this Office action.
9.  The corrected or substitute drawings have been received on \_\_\_\_\_. Under 37 C.F.R. 1.84 these drawings are  acceptable;  not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
10.  The proposed additional or substitute sheet(s) of drawings, filed on 11/28/95, has (have) been  approved by the examiner;  disapproved by the examiner (see explanation).
11.  The proposed drawing correction, filed \_\_\_\_\_, has been  approved;  disapproved (see explanation).
12.  Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has  been received  not been received  been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_.
13.  Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14.  Other

**EXAMINER'S ACTION**

***Response to Amendment***

Applicant's arguments with respect to claims 1-22 have been considered but are deemed to be moot in view of the new grounds of rejection.

Since applicant failed to list the newly added claims which read on the elected species as illustrated in Figure 1 as required by the restriction, the Examiner takes the liberty of making a list of all newly added claims which are readable on the elected species. Claims 23-28, 31-33, 37-38 and 40-42 are found readable on the elected species and claims 29-30, 34-36 and 39 which recite semi-octagonal (Fig. 28), semi-circular (Fig. 21), removable (Fig. 8) and attached to a door (Figs. 20-21) internal bends are not found to read on the elected species and are withdrawn from further consideration by the examiner.

Claims 1-22 have been cancelled.

Claims 23-42 are pending.

***Claim Rejections - 35 USC § 112***

Claims 23-28, 31-33, 37-38 and 40-42 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 23, the recitation "the entire heat exchanger unit" lacks antecedence and the recitation "wherein said outer walls or frames" lacks clarity and meaning. The remaining claims are included due to dependency.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

Claims 23, 25-28, 32, 37 and 41-42 are rejected under 35 U.S.C. § 103 as being unpatentable over applicant cited reference of Ahlberg in view of applicant cited reference of Urch.

The patent of Ahlberg in Figures 1-3 discloses a rigid heat exchanger comprised of securely clamped, plural horizontal, parallel plate layers (A), inlet duct (C) and outlet duct (D) means conducting hot and cold fluids to the layers (A) in a cross and counter-flow fashion, two removable outer walls (F, which are

referenced at the front and right sides in Figure 1), two removable doors (F, which are referenced at the back and left sides in Figure 1), removable internal return bends (G), partitions (I) and external return bends (E). The patent of Ahlberg fails to disclose the flow being counter-flow and in-line, vertical and permanently fixed plates and internal return bends and the external bends being semi-hexagonal shaped.

The patent of Urch in Figures, 2, 5 and 12-13 discloses a plurality of stacked, vertical and permanently fixed (9) heat exchanger plates (8,80), permanently fixed internal return bends (7), heat transfer fluids (13,14) flowing in an in-line and counter flow fashion and semi-hexagonal return bends (15,16) for the purpose of providing two isolated heat exchanging flow passages. Referencing page 8, lines 18-25, outer walls (17,121) are considered to be permanently fixed to the plurality of stacked plates (8, see Fig. 4). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Ahlberg permanently fixed internal return bends, vertical and permanently fixed heat exchanger plates oriented where heat exchanging fluids flow in an in-line and counter flow fashion and semi-hexagonal return bends for the purpose of providing two isolated heat exchanging flow passages as disclosed in Urch. When employing the in-line and counter flow concepts into Ahlberg, the device of Ahlberg in Figures 1 as modified, would have two permanently fixed outer walls (F, which

are referenced at the front and back sides in Figure 1) and two removable doors (F, which are referenced at both right and left sides in Figure 1). Regarding claim 26, the method of seal-welding heat exchanger parts together is not given any patentable weight in an apparatus claims. Furthermore, it is well known in the heat exchanger art to permanently fix heat exchanger parts by the methods of soldering, seal-welding and brazing. The remaining limitations are considered to be clearly met.

Claims 24, 33 and 40 are rejected under 35 U.S.C. § 103 as being unpatentable over Ahlberg in view of Urch as applied to claims 23, 25-28, 32, 37 and 41-42 above, and further in view of Dorazio et al. The patent of Ahlberg as modified, discloses all the claimed features of the invention with the exception of the internal return bends having a semi-hexagonal configuration and a transition means adapted to connect the inlet and outlet pipe means.

The patent of Dorazio et al. in Figures 1-2 discloses internal return bends (9) having a semi-hexagonal configuration and a transition means (13,15) adapted to connect inlet and outlet pipe means (3,4) for the purpose of transferring heat between fluids. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Ahlberg as modified, an internal return bend having a semi-hexagonal configuration and a transition means adapted to connect an inlet and outlet pipe means for the purpose of

transferring heat between fluids as disclosed in Dorazio et al.

Claim 31 is rejected under 35 U.S.C. § 103 as being unpatentable over Ahlberg in view of Urch as applied to claims 23, 25-28, 32, 37 and 41-42 above, and further in view of Kadle. The patent of Ahlberg as modified, discloses all the claimed features of the invention with the exception of the baffle means having rounded-off ends.

The patent of Kadle in Figures 1-4 discloses baffles (36,138) having rounded-off ends for the purpose of creating a smooth fluid flow around the baffle end. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Ahlberg as modified, baffles having rounded-off ends for the purpose of creating a smooth fluid flow around the baffle end as disclosed in Kadle.

Claim 38 is rejected under 35 U.S.C. § 103 as being unpatentable over Ahlberg in view of Urch as applied to claims 23, 25-28, 32, 37 and 41-42 above, and further in view of Abraham. The patent of Ahlberg as modified, discloses all the claimed features of the invention with the exception of holes in the baffles.

The patent of Abraham, in Figures 1-3 and in column 4, lines 18-26, discloses pin holes (37) located in baffles (33) for the purpose of reducing large temperature differentials between a fluid flowing within passages (35). It would have been obvious at the time the invention was made to a person having ordinary

skill in the art to employ in Ahlberg as modified, baffles having pin holes therein for the purpose of reducing large temperature differentials between a fluid flowing within passages as disclosed in Abraham.

*Response to Arguments*

Applicant's arguments with respect to claims 1-22 have been considered but are deemed to be moot in view of the new grounds of rejection.

*Conclusion*

Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Atkinson whose telephone number is (703) 308-2603 (FAX (703) 305-3463/3464).

C.A.

C.A.

February 15, 1996

*John Rivell*  
JOHN RIVELL  
PRIMARY EXAMINER  
ART UNIT 347